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FOREST INSECT SURVEY -- SEQUOIA-KINGS CANYON NATIONAL PARK

SEASON OF 1946

By

George R. Struble

BARK BEETLE INFESTATIONS 1945

No formal survey report of forest insect losses to pine in this park was issued last year. The forest areas, including Cedar Grove, General Grant Park, Redwood Mountain, Giant Forest, and Marble Fork were surveyed by J. M. Miller. Miller stated, in a letter to the Park Superintendent, dated Sept. 8, 1945, "In most of the pine areas, bark beetle infestations are still endemic". Slight increases in infestations over the previous year, although endemic, were noted in the western part of Marble Fork drainage between the bridge and Colony Mill Point, and in the Kings Canyon.

The sustained character of infestations as reported at intervals during the last 10 years, and the intensive public use of the Kings Canyon area indicated need for the continuation of control work here to hold losses to a minimum until a comprehensive plan for forest management could be developed. This need was stressed by Miller's letter and was followed by some control work during the spring and summer, 1946 under the supervision of Ranger Murdock.

FIELD EXAMINATION IN 1946

This examination was made by G. R. Struble of the Berkeley Laboratory, Bureau of Entomology & Plant Quarantine from October 21 to 23. Basic information on infestation trends in the virgin mixed conifer stands was secured as a result of measured losses on 8 established roadside plots, roadside counts of currently killed trees, red top counts from lookouts and other high vantage points, general observations and notes.

An earlier special examination of the pine areas east of Giant Forest was made September 24 to 27 by Struble, and M.E. Thede of the National Park Service, to determine the cause of reported damage to foxtail pine on Red Spur near Chagoopa Plateau. The probability of storms at this season prevented examination of the relatively inaccessible Red Spur area, but examinations of Chagoopa Plateau and Big Arroyo revealed no current insect infestations or damage.

AREAS EXAMINED

The October surveys and examinations were made in Kings Canyon at Cedar Grove and vicinity, General Grant grove, Redwood Mountain, Woodward and Stony creeks, Lodgepole, Giant Forest, and Marble Fork near Colony Mill Point. Examinations during September included also the ponderosa and

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sugar pine areas of the upper Middle Fork through Bear Paw Meadow and River Valley. Examinations south of Middle Fork did not appear warranted because of general low infestations elsewhere in the Kaweah drainage.

CURRENT TRENDS AND LOSSES

Upward infestations of the mountain pine beetle in sugar pine in the General Grant Grove area this year provided the only change in the status of insect trends within Sequoia-Kings Canyon National Park for the past several years. The outbreak here is localized within the grove and in adjoining stands under Forest Service ownership. Elsewhere within the park the situation remained much the same as during the past several years. In the Kings Canyon area at Cedar Grove the 1946 losses in ponderosa pine were sustained at about the same level as in 1944 and 1945 with the exception that larger trees were attacked. Conditions elsewhere were at a low endemic level, where occasional single trees were killed, amounting in total number among all species to less than 10 per timbered section.

INSECTS INVOLVED

Bark beetles causing aggressive killing this year are: the western pine beetle, Dendroctonus brevicornis Lec. in ponderosa pine (principally in Kings Canyon), D. Monticolae Hopk. in sugar pine (aggressive in Grant Grove, killing occasional trees elsewhere), Jeffrey pine beetle, D. jeffreyi Hopk. in Jeffrey pine (killing occasional trees along Generals Highway, Woodward and Stony Creek drainages), pine engraver beetle, Ips confusus Lec. (occasional in ponderosa pine and sugar pine tops and laterals), fir engraver beetle Scolytus ventralis Lec., (killing occasional white fir, limbs and tops of red and white fir.) Borers involved in primary killing of minor intensity this year are the Sierra fir borer, Tetropium abietis in white fir with the fir engraver beetle, and the flathead borers Melanophila gentilis Lec. and M. californica in sugar pine and ponderosa pine.

AREAS REQUIRING SPECIAL ATTENTION

1. Grant Grove

This recreational area of intensive use contains one of the best stands of mature sugar pines in the Park. Aggressive mountain pine beetle killing among these sugar pines has passed the stage where it can be tolerated, and immediate action to curb further damage is fully justified. There are approximately 40 trees with an aggregate volume of 200,000 board feet which will require treatment. Heaviest infestations occur in the vicinity of the General Grant Tree.

2. Kings Canyon

Infestations in pine areas lying to the east of Cedar Grove were noticeably decreased from the conditions existing for the previous 3 years, while they were sustained in areas to the west. The 1946 kill was concentrated in the vicinity of the road west of Cedar Grove, where 9 trees were

recorded, most of which were abandoned at the time of examination. It is expected that a few more trees will fade later on this fall or winter.

RECOMMENDATIONS

1. Direct Control

Control work should be undertaken before May, 1947 to suppress further killing of sugar pine in Grant Grove. This work will require felling, peeling the bark from the top and sides of infested logs, and burning. One four-man crew, working through parts of March and April when weather conditions permit, should be sufficient to complete the job. The cost is estimated at \$1000.00.

2. Maintenance control.

Control work should be continued in the Kings Canyon area to suppress further the western pine beetle. The tree weakening influence of dry, rather poor, growing site conditions has adversely affected the ponderosa pine stand as a whole. Further insect caused losses can be minimized by the continued practice of cutting and burning all trees containing overwintering broods during the late fall and early spring. The heavy recreational use of Cedar Grove emphasizes the necessity of this work as long as bark beetle losses are in evidence.